SUPPLEMENTAL AMENDMENT
Appln. No. 09/917,874

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A multi-layer gas sensor element comprising a solid electrolytic member, a substrate, and a porous member, co-fired together, wherein each of the substrate and the porous member has a thickness of at least 1.5 times larger than that of the solid electrolytic member with respect to a lamination direction; the substrate and the porous member face each other and sandwich the solid electrolytic member; a ceramic component constituting the substrate in the highest volume percent thereof is the same as the ceramic component constituting the porous member in the highest volume percent thereof; the solid electrolytic member also contains said ceramic component which is predominately contained in said substrate in an amount of 20 to 70 mass%; and the volume percent (R2) of the ceramic component contained in the porous member is 80% or more of the volume percent (R1) of the ceramic component contained in the substrate,

wherein when the mean grain size of crystals constituting the substrate is referred to as "a1" and the mean grain size of crystals constituting the porous member is referred to as "a2," a value A represented by the following equation (1) falls within a range of from 0.9 to 5 inclusive:

$$A=a1/a2 \qquad (1)$$

2. (canceled).

3. (original): A multi-layer gas sensor element according to claim 1, wherein the relative density of the porous member is 40-85%.

4. (original): A multi-layer gas sensor element according to claim 1, wherein the porosity of the porous member is 15-60%.

5. (original): A gas sensor comprising a multi-layer gas sensor element as recited in claim 1.

6. (original): A multi-layer gas sensor element according to claim 2, wherein the relative density of the porous member is 40-85%.

7. (original): A multi-layer gas sensor element according to claim 2, wherein the porosity of the porous member is 15-60%.

8. (original): A gas sensor comprising a multi-layer gas sensor element as recited in claim 2.

9. (original): A multi-layer gas sensor element according to claim 1, wherein the relative density of the porous member is 50-70%.

10. (original): A multi-layer gas sensor element according to claim 2, wherein the relative density of the porous member is 50-75%.

11. (original): A multi-layer gas sensor element according to claim 1, wherein the porosity of the porous member is 25-50%

12. (original): A multi-layer gas sensor element according to claim 2, wherein the porosity of the porous member is 25-50%.

13. (canceled).

14. (original): A multi-layer gas sensor element according to claim 2, comprising a solid electrolytic member, a substrate, and a porous member, wherein the average thickness of each of the substrate and porous member is at least 1.5 times that of the solid electrolytic member.

15. (original): A multi-layer gas sensor element according to claim 1, wherein the volume percent (R2) of the ceramic component contained in the porous member is 90% or more the volume percent (R1) of the ceramic component contained in the substrate.

16. (original): A multi-layer gas sensor element according to claim 1, wherein the volume percent (R2) of the ceramic component contained in the porous member is 95% or more the volume percent (R1) of the ceramic component contained in the substrate.

17. (original): A multi-layer gas sensor element according to claim 1, wherein the amount of said ceramic component of highest volume percent contained in the substrate is 80 vol% or more.

18. (original): A multi-layer gas sensor element according to claim 1, wherein the volume percent (R2') of crystals formed of said ceramic component of highest volume percent contained in the porous member is 60% or more of the volume percent (R1') or crystals formed of said ceramic component contained in the substrate.

19. (original): A multi-layer gas sensor element according to claim 1, wherein said ceramic component of highest volume percent is Al_2O_3 or ZrO_2.

20. (canceled).